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RPTO/SB/21 (08-00)
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM

to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

4

Application Number

09/683,264

Filing Date

December 5, 2001

First Named Inventor

Sani-Rose

Group Art Unit

1024

Examiner Name

Unassigned

Attorney Docket Number

018547-048820US

ENCLOSURES (check all that apply)

☐ Fee Transmittal Form

☐ Fee Attached

☐ Amendment / Response

☐ After Final

☐ Affidavits/declaration(s)

☐ Extension of Time Request

☐ Express Abandonment Request

☒ Information Disclosure Statement

☐ Certified Copy of Priority Document(s)

☐ Response to Missing Parts/
Incomplete Application

☐ Response to Missing
Parts under 37 CFR
1.52 or 1.53

☐ Assignment Papers
(for an Application)

☐ Drawing(s)

☐ Licensing-related Papers

☐ Petition Routing Slip (PTO/SB/69)
and Accompanying Petition

☐ Petition to Convert to a
Provisional Application

☐ Power of Attorney, Revocation
Change of Correspondence Address

☐ Terminal Disclaimer

☐ Request for Refund

☐ CD, Number of CD(s)

☐ After Allowance Communication to
Group

☐ Appeal Communication to Board of
Appeals and Interferences

☐ Appeal Communication to Group
(Appeal Notice, Brief, Reply Brief)

☐ Proprietary Information

☐ Status Letter

☒ Other Enclosure(s)
(please identify below):

1) Return receipt postcard

2) Four (4) Reference Copies

3) International Search Report

Remarks

The Commissioner is authorized to charge any additional fees to
Deposit Account 20-1430.

Total number of pages does not include cited references.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm
and
Individual name

Townsend and Townsend and Crew LLP

Joe Liebeschuetz

Reg No. 37,505

Signature

J. Liebeschuetz

Date

May 13, 2003

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on this date:

May 13, 2003

Typed or printed name

Chris Fitting

Signature

Chris Fitting

Date

May 13, 2003

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.
PA 3305137 v1

PATENT
Attorney Docket No.: 018547-048820US
Client Reference No.: 3407.2



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Sani-Rose et al.

Application No.: 09/683,264

Filed: December 5, 2001

For: COMPUTER SOFTWARE FOR
AUTOMATED ANNOTATION OF
BIOLOGICAL SEQUENCES

Examiner: Unassigned

Art Unit: 1024

INFORMATION DISCLOSURE
STATEMENT UNDER 37 CFR §1.97 and
§1.98

RECEIVED
MAY 22 2003
TECH CENTER 1600/2900

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The references cited on attached form PTO/SB/08B are being called to the attention of the Examiner. Copies of the references are enclosed. It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom. Also enclosed is a copy of the International Search Report corresponding to the PCT application.

As provided for by 37 CFR 1.97(g) and (h), no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information, and no inference should be made that the information and references cited are, or are considered to be material to patentability because they are in this statement. No inference should be made that the information and references cited are prior art merely because they are in this statement.


Sani-Rose et al.
Application No.: 09/683,264
Page 2

PATENT

Applicant believes that no fee is required for submission of this statement.

However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,



Joe Liebeschuetz
Reg. No. 37,505

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
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JOL:crf
PA 3304845 v1

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Page

1

of

1

Complete if Known

Application Number	09/683,264
Filing Date	December 5, 2001
First Named Inventor	Michael A. Siani
Art Unit	2857
Examiner Name	Unassigned
Attorney Docket Number	018547-048820US

NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	AA	BERMAN et al., "The Protein Data Bank," <u>Nuc. Acids Res.</u> , 28(1):235-242 (2000).	
	AB	BRENNER et al., "The ASTRAL compendium for protein structure and sequence analysis," <u>Nuc. Acids Res.</u> , 28(1):254-256 (2000).	
	AC	KARPLUS et al., "Hidden Markov models for detecting remote protein homologies," <u>Bioinformatics</u> , 14(10):846-856 (1998).	
	AD	HAUGHEY et al., <i>SAM Sequence Alignment and Modeling Software System</i> , Baskin Center for Computer Engineering and Science, University of California, Technical Report UCSC-CRL-99-11, pgs. 1-154 (2001).	

Examiner
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.
PA 3304845 v1

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 18547-488PC	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US02/12435	International filing date (day/month/year) 19 April 2002 (19.04.2002)	(Earliest) Priority Date (day/month/year) 19 April 2001 (19.04.2001)
Applicant AFFYMETRIX, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☒ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☒ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/12435

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐
☒

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/12435

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 33/48

US CL : 702/19

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 702/19

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KARPLUS, K. et al. Hidden Markov models for detecting remote protein homologs. Bioinformatics. 1998, Volume 14, Number 10, pages 846-856, see entire document.	1-57
X	BRENNER, S.E. et al. The ASTRAL compendium for protein structure and sequence analysis. Nucleic Acid Research. January 2000, Volume 28, Number 1, pages 254-256, see entire document.	1-4, 12, 14-23, 31, 39-42, and 50
---		-----
Y		3-11, 13, 24-30, 32-38, 43-49, and 51-57
X	BERMAN, H.M. et al. The Protein Data Bank. Nucleic Acids Research. January 2000, Volume 28, Number 1, pages 235-242, see entire document.	1-4, 12, 14-23, 31, 39-42, and 50
---		-----
Y		3-11, 13, 24-30, 32-38, 43-49, and 51-57
X, P	HUGHEY, R. et al. SAM Sequence Alignment and Modeling Software System. Baskin Center for Computer Engineering and Science, University of California, Technical Report UCSC-CRL-99-11. 20 December 2001, pages 1-154, see entire document.	1-57

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

10 April 2003 (10.04.2003)

Date of mailing of the international search report

01 MAY 2003

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Channing S. Mahatan
Channing S. Mahatan

Telephone No. (703) 308-0196

INTERNATIONAL SEARCH REPORT

PCT/US02/12435

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-11, 20-30, and 39-49, drawn to a method, system, and computer software product for characterizing a plurality of biological sequences.

Group II, claim(s) 12-19, 31-38, and 50-57, drawn to a method, system, and computer software product for gene characterization. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of Group I is considered to be the determination of fitness of the biological sequences to the models and the classification of the sequences to the distances to the models.

The special technical feature of Group II is considered to be the establishment of the criteria for assigning the sequences for each model and the assignment of the sequences to the models based upon the criteria.

The claimed method, system, and computer software product in Groups I and II produce different products and/or different results which are not coextensive and which do not share the same technical feature; determination of fitness and classification, establishment of the criteria and assignment. Note that PCT Rule 13 does not provide for multiple products or methods in a single application.

Thus, in summary, the inventions listed as Groups I and II are not linked as to form a single general inventive concept ("requirement of unity of invention").

Continuation of B. FIELDS SEARCHED Item 3:

US PAT FULL, MEDLINE, BIOSIS, CAPLUS, EMBASE, BIOTECHDS

search terms: sequence, classification, structural, functional, model, Hidden Markov, E-value, library

UNITED STATES RECEIVING OFFICE (RO/US) FEE CODING AND RECORDING SHEET

☐ ADD'L SHEETS

IDENTIFICATION OF THE INTERNATIONAL APPLICATION

INTERNATIONAL APPLICATION NUMBER

PCT/US02/12435

INTERNATIONAL FILING DATE

19 APRIL 2002

APPLICANT (Name)

AFFY METRIX, INC.

PAYMENTS

REFUNDS

Payment on Filing				Deposit Account		Deposit Account		To Deposit Account		To Deposit Account	
				20	1430						
Deposit Account				DATE: 10 APRIL 03		DATE:		DATE:		DATE:	
<input type="checkbox"/> CASH/CHECK				<input checked="" type="checkbox"/> CASH/CHECK		<input type="checkbox"/> CASH/CHECK		<input type="checkbox"/> BY CHECK		<input type="checkbox"/> BY CHECK	
150				1604	\$210.00						
151											
153											
800											
801											
802											
892											
Total Paid:				Total Paid: \$210.00		Total Paid:		Total Refunded:		Total Refunded:	
States Included for 892:				892:		892:					
States Included for 893:				893:		893:					

Date Mailed:

RO/US Authorization

M.S.

RO/US Authorization

RO/US Authorization

RO/US Authorization

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CHAPTER I
PCT TELEPHONE MEMORANDUM
FOR
LACK OF UNITY OF INVENTION



PCT No.: PCT/US02/12435

Examiner: Channing S. Mahatan

Attorney spoken to: Joe Liebeschuetz

Date of call: 10 April 2003

- ☒ Amount of payment approved: \$210.00
- ☒ Deposit account number to be charged: 20-1430
- ☒ Attorney elected to pay for ALL additional inventions
- ☐ Attorney elected to pay only for the additional inventions covered by
- ☐ Group(s):
- encompassing --
- ☐ Claim(s):
- ☐ Attorney elected NOT to pay for any additional inventions, therefore, only the first claimed invention (Group I) covered by Claim(s) _____ has been searched.
- ☒ Attorney was orally advised that there is no right to protest for any group not paid for.
- ☒ Attorney was orally advised that any protest must be filed no later than 15 days from the mailing of the Search Report (PCT/ISA/210).

Time Limit For Filing A Protest

Applicant is hereby given 15 days from the mailing date of this Search Report in which to file a protest of the holding of lack of unity of invention. In accordance with PCT Rule 40.2, applicant may protest the holding of lack of unity only with respect to the group(s) paid for.

Detailed Reasons For Holding Lack of Unity of Invention:

Please See Continuation Sheet

Note: A copy of this form must be attached to the Search Report.

**ATTACHMENT TO CHAPTER I PCT TELEPHONE MEMORANDUM
FOR
LACK OF UNITY OF INVENTION**

Continuation of Detailed Reasons For Holding Lack of Unity of Invention:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-11, 20-30, and 39-49, drawn to a method, system, and computer software product for characterizing a plurality of biological sequences.

Group II, claim(s) 12-19, 31-38, and 50-57, drawn to a method, system, and computer software product for gene characterization.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of Group I is considered to be the determination of fitness of the biological sequences to the models and the classification of the sequences to the distances to the models.

The special technical feature of Group II is considered to be the establishment of the criteria for assigning the sequences for each model and the assignment of the sequences to the models based upon the criteria.

The claimed method, system, and computer software product in Groups I and II produce different products and/or different results which are not coextensive and which do not share the same technical feature; determination of fitness and classification, establishment of the criteria and assignment. Note that PCT Rule 13 does not provide for multiple products or methods in a single application.

Thus, in summary, the inventions listed as Groups I and II are not linked as to form a single general inventive concept ("requirement of unity of invention").

Note: A copy of this form must be attached to the Search Report.

NOTES TO FORM PCT/ISA/220 (continued)

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under Article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

The statement should be brief, it should not exceed 500 words if in English or if translated into English.

It should not be confounded with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It should not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report, may be made only in connection with an amendment of that claim.

In what language?

The amendments must be made in the language in which the international application is published. The letter and any statement accompanying the amendments must be in the same language as the international application if that language is English or French; otherwise, it must be in English or French, at the choice of the applicant.

Consequence if a demand for international preliminary examination has already been filed?

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase?

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated elected Office, see Volume II of the PCT Applicant's Guide.